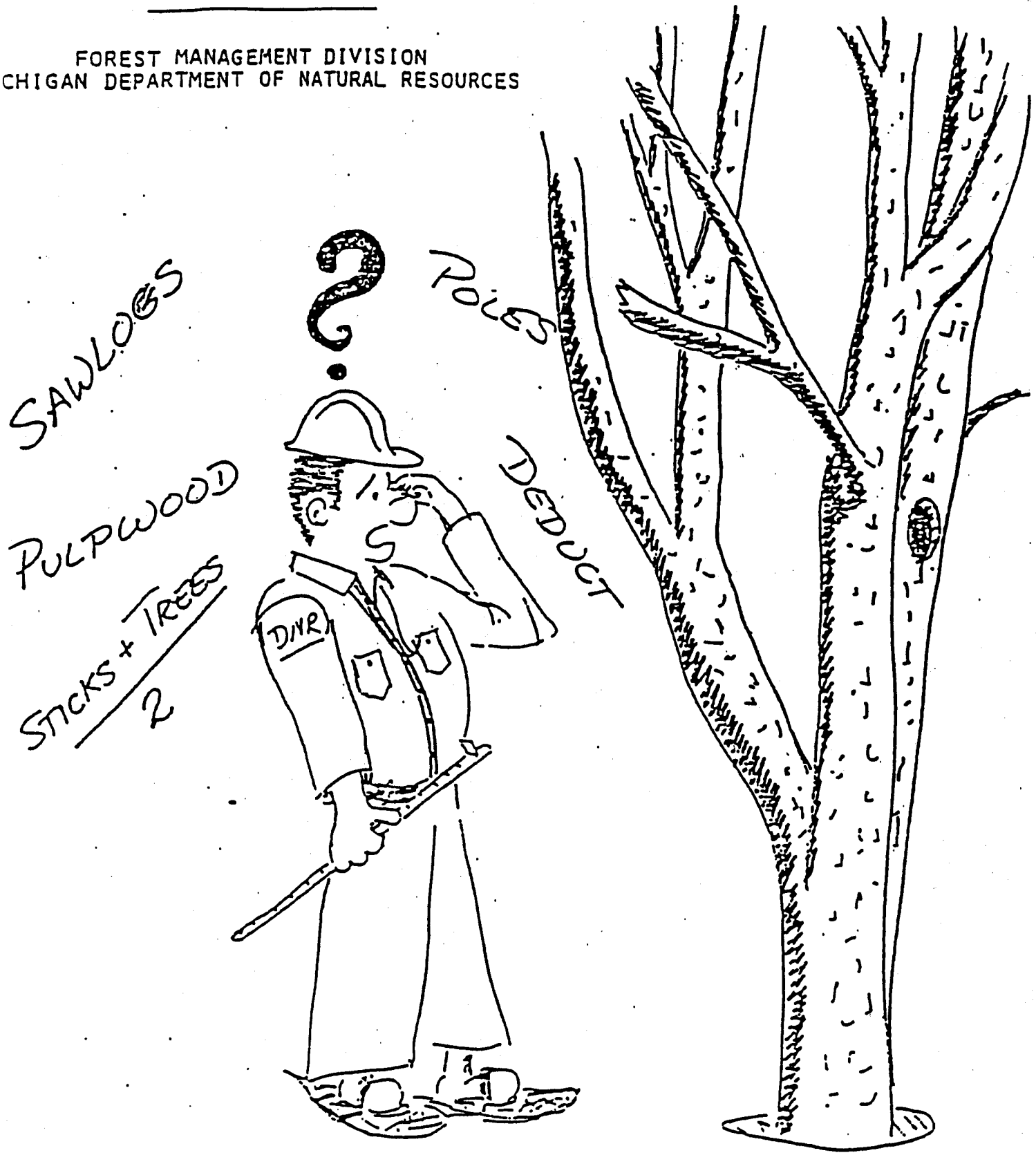
STANDARDS

FOREST MANAGEMENT DIVISION
CHIGAN DEPARTMENT OF NATURAL RESOURCES



MICHIGAN DEPARTMENT OF NATURAL RESOURCES
Forest Management Division

PRODUCT STANDARDS

1. PULPWOOD:

Cruising units (sticks) are defined as 100" segments down to 4" D.I.B. which do not meet sawlog specs (i.e., can include log sized trees). Minimum DBH should be in the five inch diameter class (4.6" - 5.5") (see Figure 1 for dbh measurements).

NOTE: Pulpwood should be rounded up to a full stick if the 4" D.I.B. point occurs at or beyond the 6' part on a 100" stick (assuming uniform taper and few limbs).

A. Stoppers - Defects where merchantability cannot go beyond; Limbs are not generally stoppers (Figure 2)

1. Dead tops
2. Clumps of large limbs
3. Section of severe crook
4. Excessive rot

B. Deductions from useable height (Figure 3)

1. Areas of rot
2. Area of crook or sweep with merchantable wood above and below this point.

NOTE: Sections of the tree that contain rot, bad crook etc., should not be counted as merchantable wood with the idea of deducting a certain cull percentage on the stumpage appraisal sheet to account for this. A better practice is to skip these areas of defect and count as sticks only those parts of the tree that contain sound, usable wood.

2. SAWLOGS: (Figures 5 and 6)

A. HARDWOOD - 100" segment minimum length larger than 8" D.I.B.(or 9" D.O.B.) at small end with more than 65% of a particular segment in useable wood (i.e., less than 35% deduction for rot, crook, sweep, scars, seams and cracks or a combination of all defects), or any segment exceeding standards for Grade #3 logs. Products that do not meet these standards will be considered pulp or cull. Minimum DBH should be in the 10" class (9.1" - 11").

B. SOFTWOODS - 100" segment minimum length, larger than 8" D.I.B. (or 9" D.O.B.) at small end with more than 50% of a particular segment in usable wood (i.e., less than 50% deduction for rot, crook, sweep, scars, seams and cracks or a combination of all defects). Products that do not meet these standards will be considered pulp or cull. Minimum D.B.H. should be in the 10" diameter class (9.1" - 11")

C. International 1/4 inch rule should be used for all sawlog volume calculations in Region II. Scribner to be used in Region I.

D. If local markets dictate, hardwood and softwood sawlogs can be cruised to a 10" D.I.B. or 11" D.O.B. top. If these top diameters are used, they must be so stated in the sale proposal.

E. Stoppers-defects where merchantability cannot go beyond (e.g., defects that can be cut out are not stoppers if there is more than 8' of merchantable material beyond this point).
(Figure 4)

1. Hardwood

a. Defects (limbs, knots, holes, etc.) - all those larger than 1/3 diameter of the tree at that point on the bole, or a series of defects closer than two feet.

2. Softwoods

a. Limbs larger than 1/3 diameter of tree at that point.

b. Whorls of limbs or sound knots 4" + in diameter.

c. Whorls of loose or decayed knots 2" + in diameter.

NOTE: Effect of dead limbs, holes, seams etc., varies greatly from species to species. No standard guidelines can replace knowledge gained locally by observing trees being bucked and sawn.

3. SAWBOLT - Small sawlogs to be used as an optional product. Exact specifications are to be determined locally and stated on the sale proposal. Measured in units of cords or MBF.

4. RED PINE UTILITY POLES - specialized product - see American National Standards (6 and 7 of this report)

5. BASIC CRUISING SPECIFICATION

A. Type of Cruise Sheets

1. Individual Tree Tally - requires the recording of the amount of sawlogs and/or pulpwood on a per tree basis

2. Cumulative Tree Tally - requires the recording of the amount of sawlogs and/or pulpwood by groups of one species of tree, e.g. the total amount of sawlogs and pulpwood for Aspen will be cruised and recorded as a group. The total amount of sawlogs and pulpwood for Balsam fir will be cruised and recorded as a group etc.

B. When point sampling a tree must be measured at a point 4.5 feet above the ground.

1. Cruiser must compensate for unusual swelling at this point.

2. Cruiser in deep snow country must compensate.

C. Pulpwood Estimation - Single stem trees that contain only pulpwood (figure A).

1. For individual tree tally - record the number of pulpwood sticks for one particular tree next to its species code or abbreviation.

2. For cumulative tree tally - record the total number of trees for any one particular species, e.g. all aspen trees. Then record the total number of 100" pulp sticks for all the trees of that particular species. Do this for each species that are on that one plot.

D. Sawlog Estimation - Single stem trees that contain only sawlogs.

1. For individual tree tally - record the number of sawlogs for any one particular tree next to its species code or abbreviation.

2. For cumulative tree tally - record the total number of trees for any particular species. Then record the total number of 100" segments for all the trees of that one particular species. Record the total number of these trees that contain sawlogs, then record the total number of sawlogs that are in these log trees. Repeat for the other species on the plot (if any).

E. Estimation of Multiple Products - Single stem trees that contain sawlogs and pulpwood (Figure B).

1. For individual tree tally - record the number of sawlogs and pulpwood sticks for any one particular tree next to the species code or abbreviation.

2. For cumulative tree tally - record the total number of trees for any one particular species, e.g. all aspen trees. Then record the total number of 100" segments (pulp sticks and sawlogs) for that particular species. Record the total number of these trees that contain sawlogs, then record the total number of sawlogs that are in these log trees. Repeat for the other species on the plot.

F. Accounting for topwood, multiple stems, forked trees, etc.

1. Pulpwood only trees that contain miscellaneous merchantable limbs in addition to the main stem (Figure C, D) - count the number of 100" sticks in the dominant stem. Count the total number of 100" sticks contained in the miscellaneous merchantable limbs. Take one-third of this (rounded off to the nearest whole number) and add to the main stem total for total number of recordable pulpwood sticks.

SIDE NOTE: dominant stem is defined or that stem that contains the greatest merchantable height (and/or value).

2. Trees that contain sawlogs, pulpwood and miscellaneous merchantable pulpwood timber (figure E, H, J). Record the numbers of 100" sawlogs. Note the numbers of 100" pulp sticks above the sawlog in the dominant item. Take one-third of the merchantable miscellaneous limbs and add to this for the total numbers of recordable pulp sticks.

3. Forked Trees

   A. Forks under 4.5 feet - cruise each stem as a seperate tree.

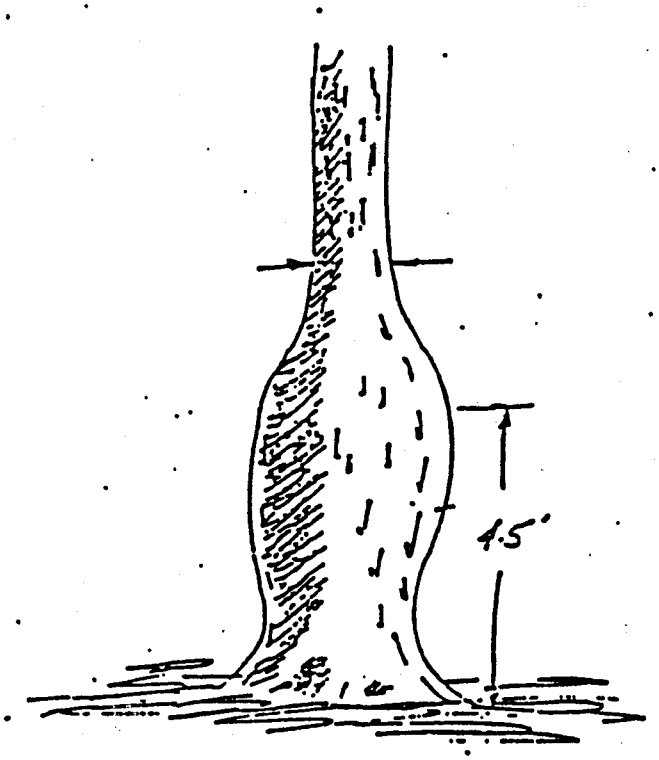
   B. Forks over 4.5 feet and multi forked/multi topped trees that contain entirely pulpwood (Figure C,D). Count the total number of sticks in the dominant stem. Take one-third of the miscellaneous sticks rounded off to the nearest full stick. Add this to the dominant stem total and enter on the sheet.

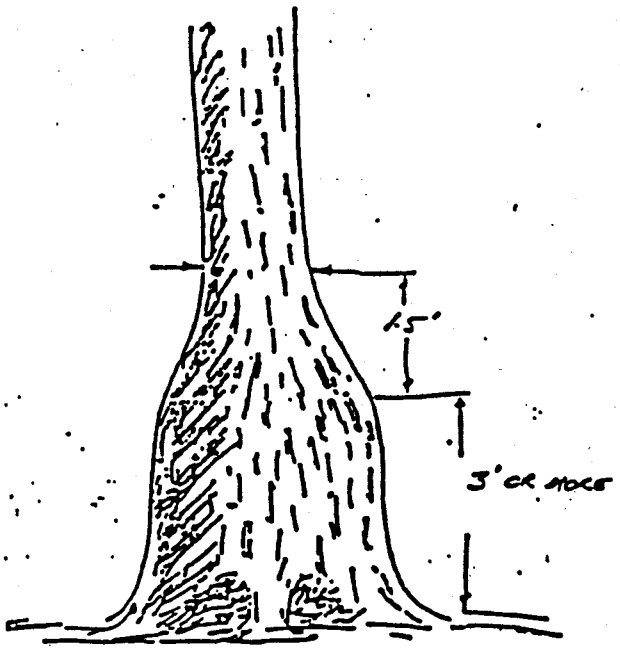
   C. Forks over 4.5 feet when one stem contains sawlogs and the other stem(s) pulpwood (see Figure G) - sawlog stem is considered dominant due to higher value. Other stems are considered miscellaneous and are cruised as stated in previous examples.

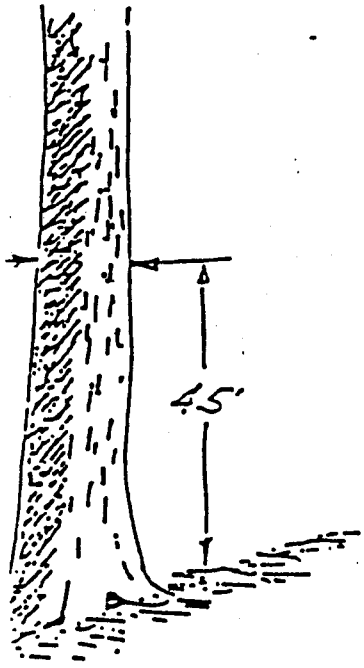
   D. Forks over 4.5 feet where both stems contain at least one sawlog (see Figures F, I, K) - Note all sawlogs below the fork (if any). Note all sawlogs above the fork. Take one-half of this (rounded up to the nearest whole log) add to the below fork sawlog total and enter on the sheet. Pulpwood estimation in the topwood is as already given in previous examples.

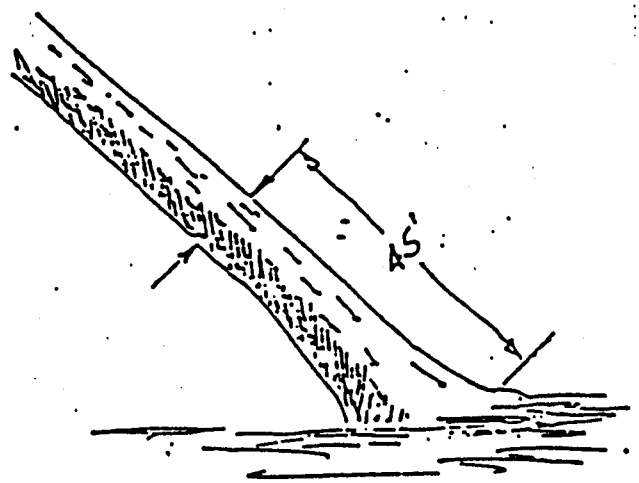
   E. Definition of fork where two trees have grown together - fork begins at the point where the trees start to separate.

D.B.H. MEASURING POINT









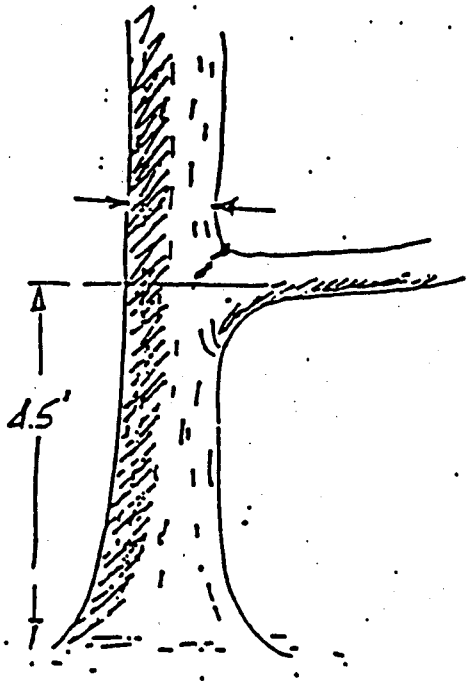


FIGURE 1

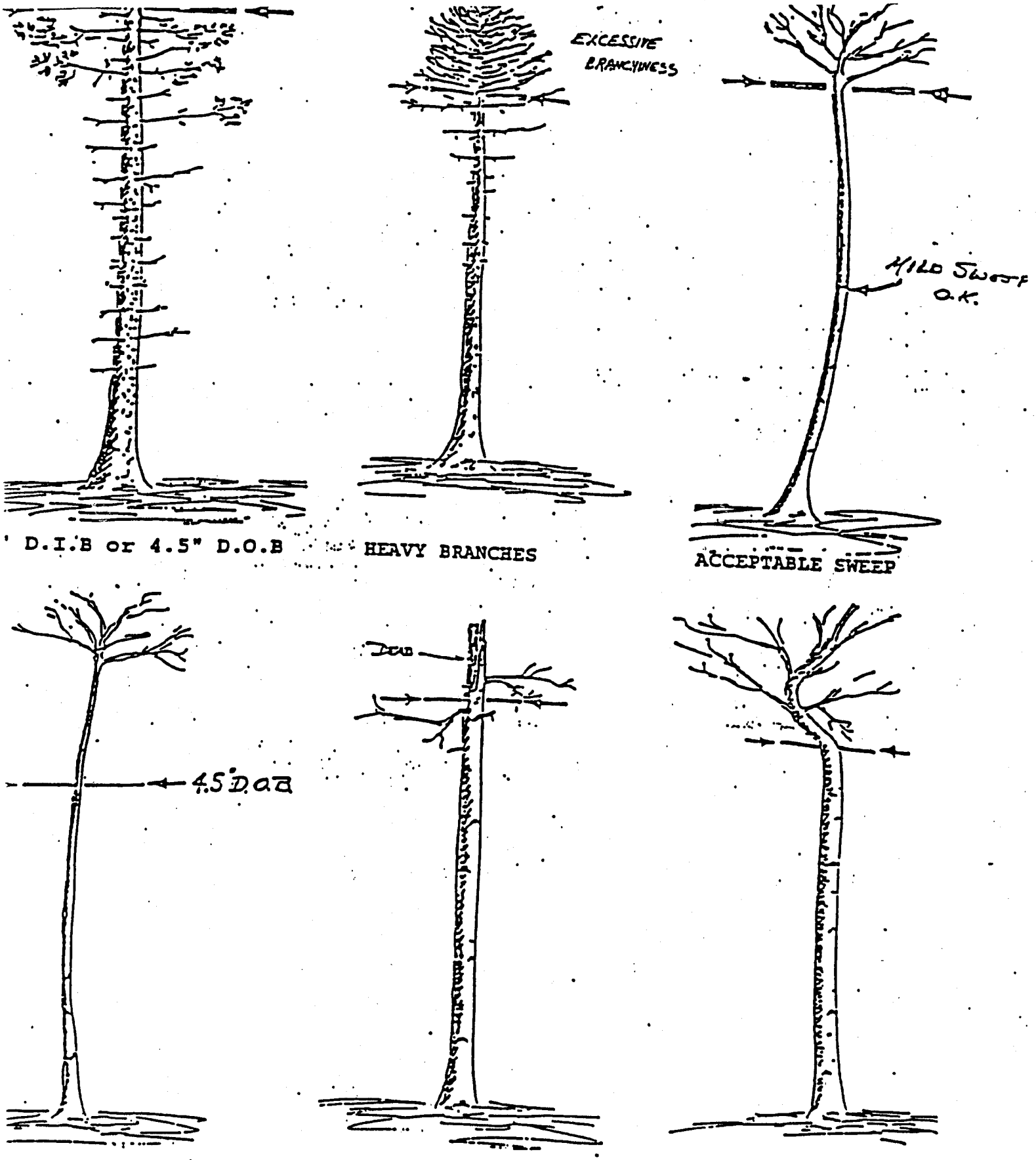
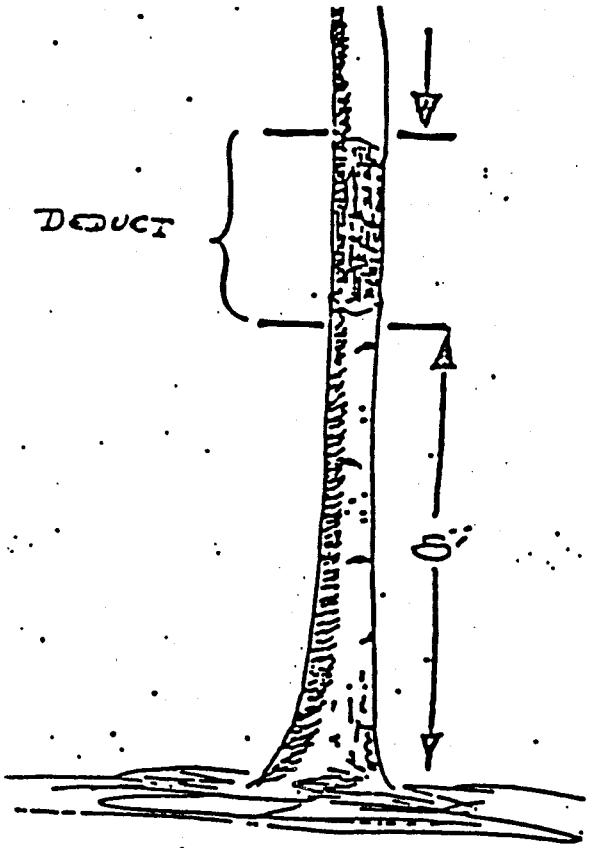
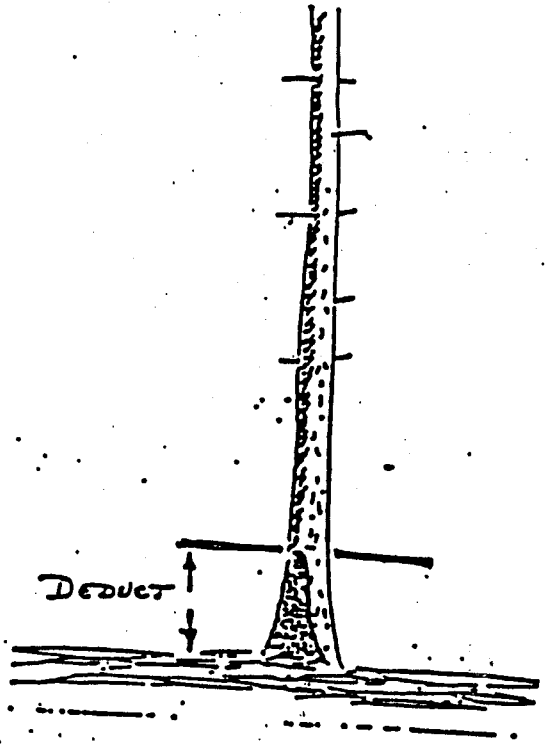

EXCESSIVE BRANCHINESS
4/12 Sweep O.K.
' D.I.B or 4.5" D.O.B
HEAVY BRANCHES
ACCEPTABLE SWEEP
4.5" DAB
).I.B or 4.5" D.O.B.
DEAD TOP
CROOK

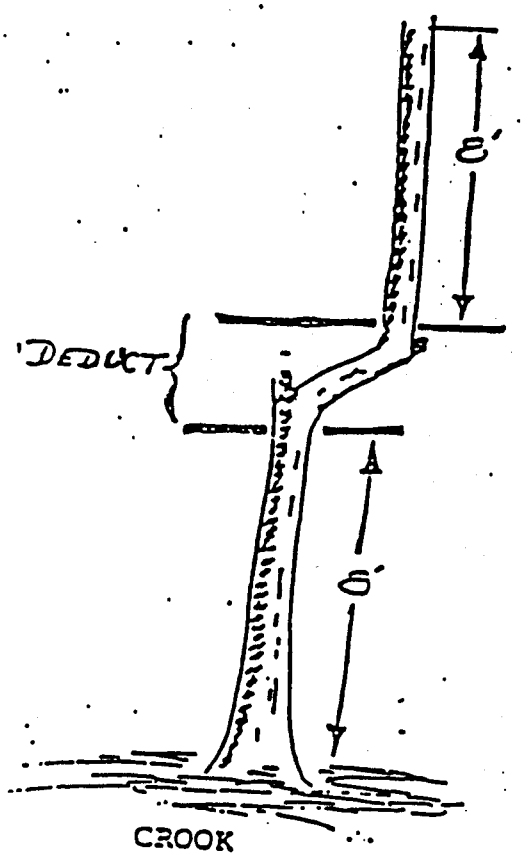
FIGURE 2



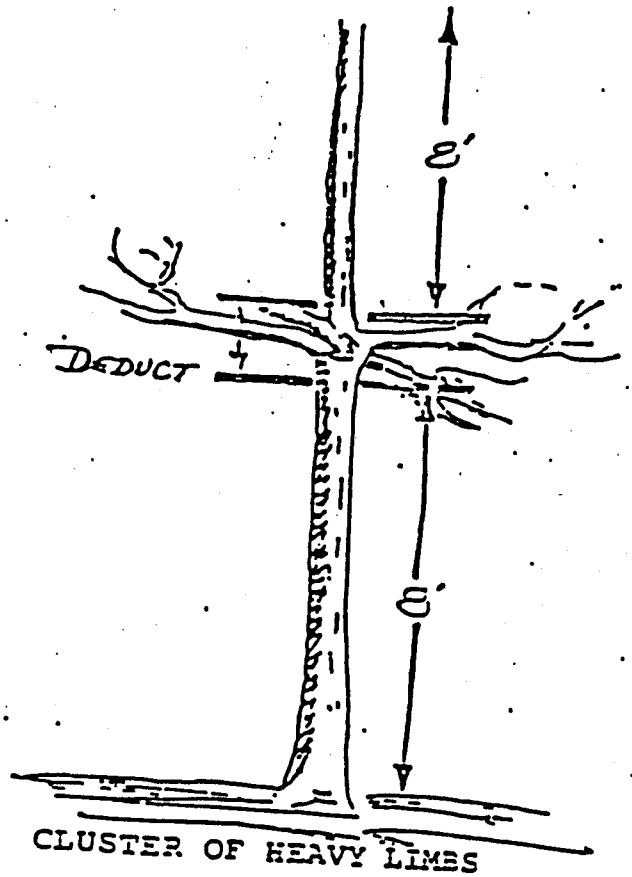
AREA OF ROT



CATFACE



CROOK



CLUSTER OF HEAVY LIMES

FIGURE 3

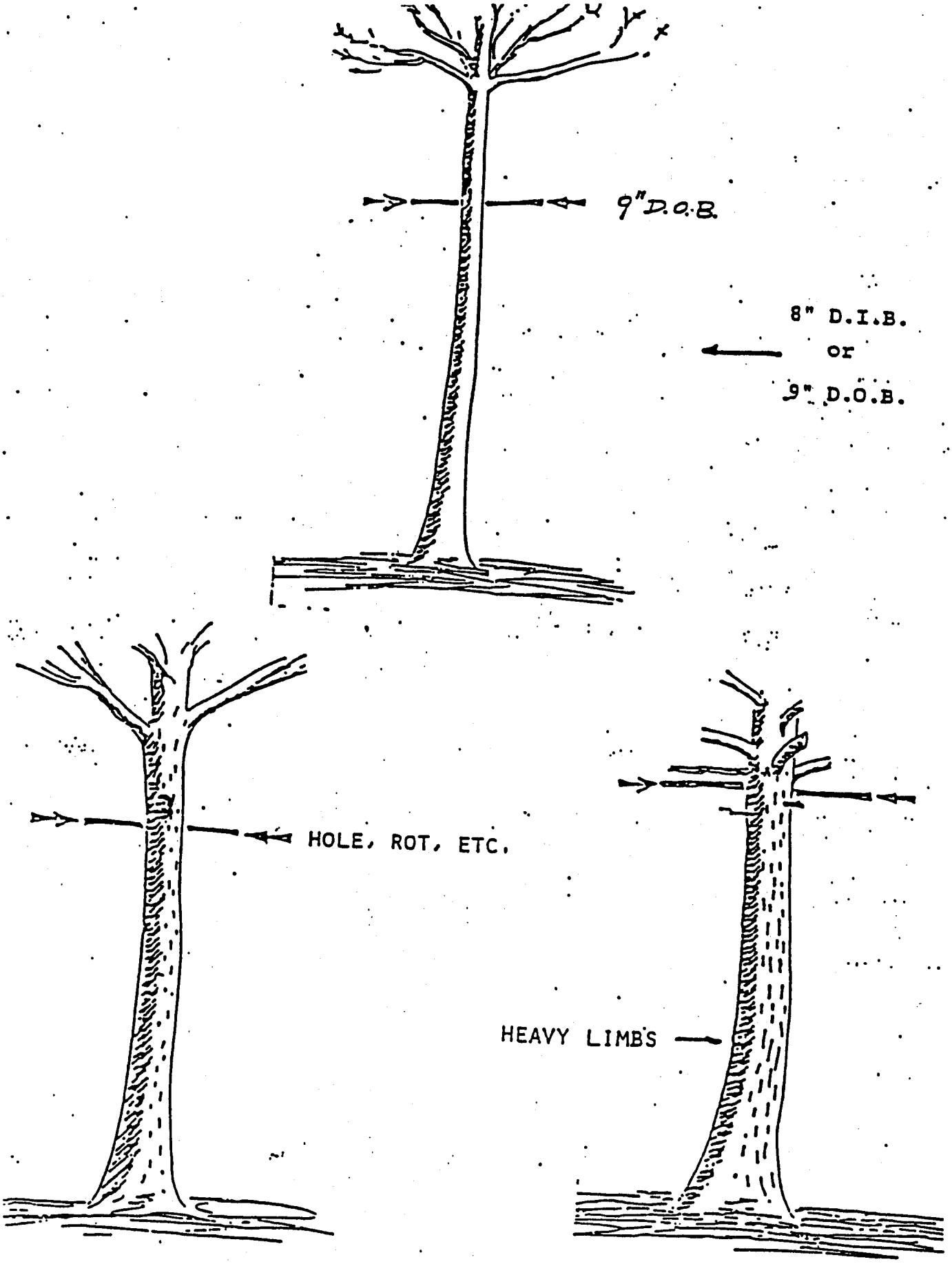
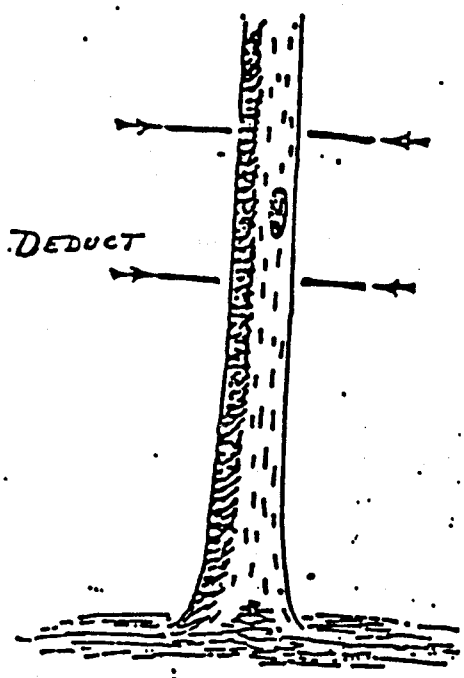
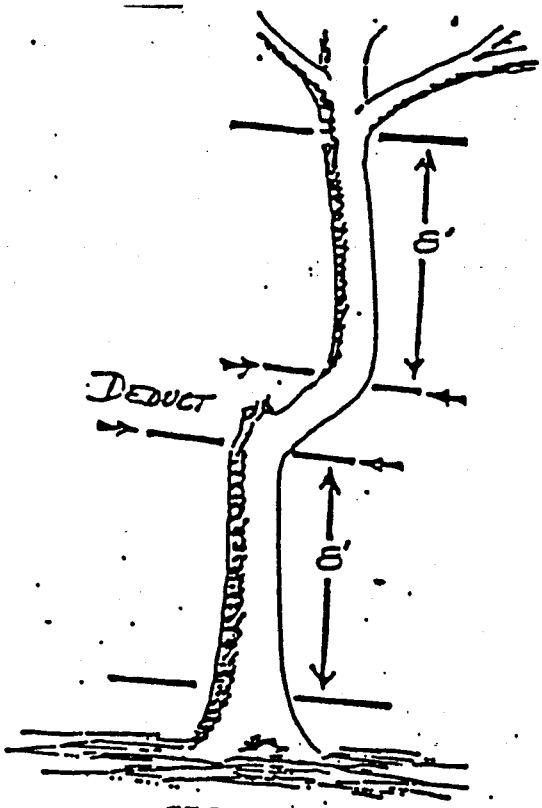


FIGURE 4



HOLE, ROT, ETC.



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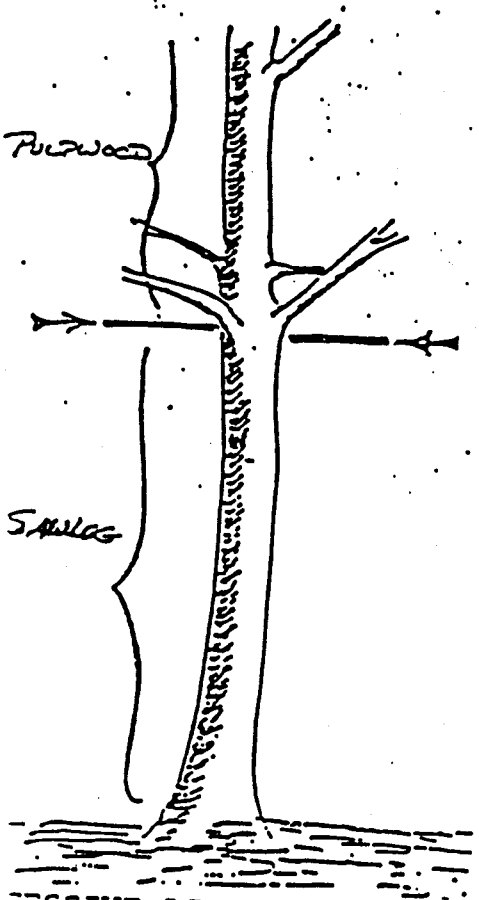
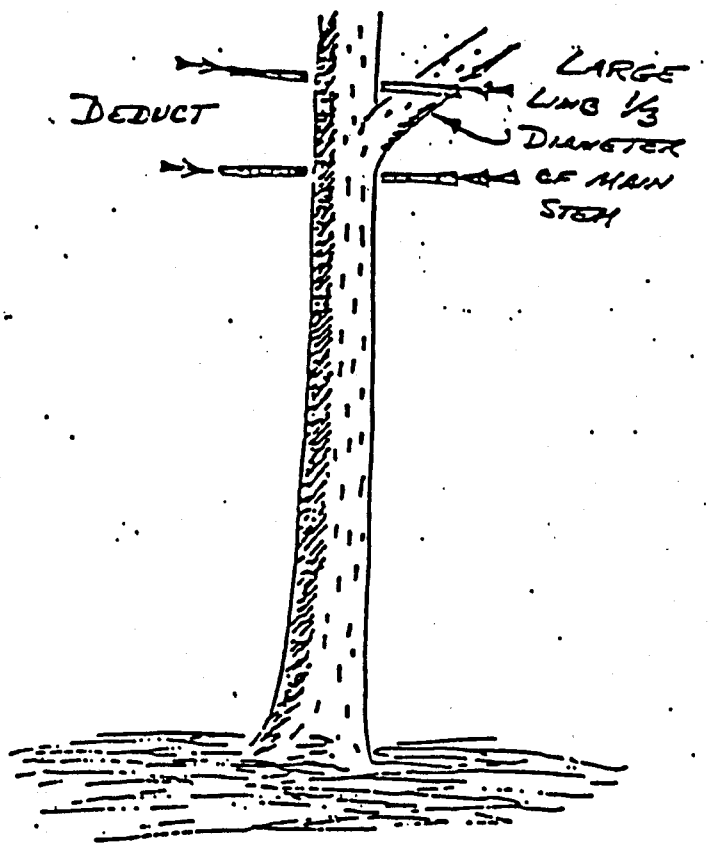
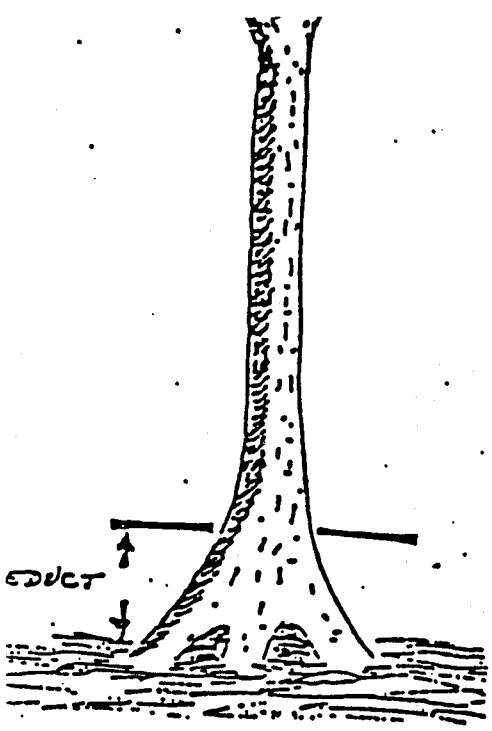


CESSIVE LIMBINESS FOR
WLOGS BUT NOT FOR PULPWOOD

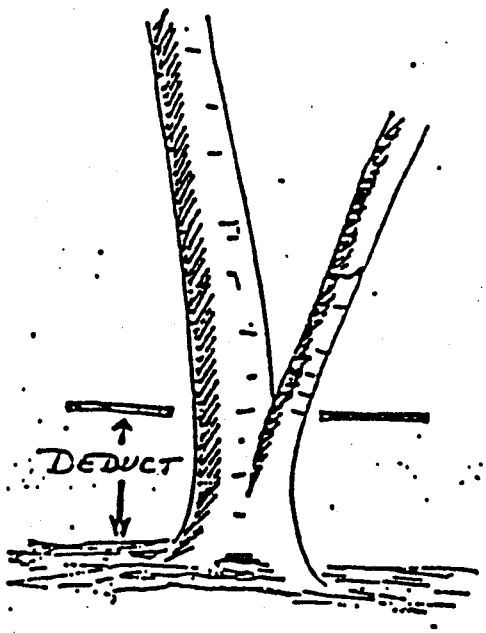


LARGE DIAMETER LIMB

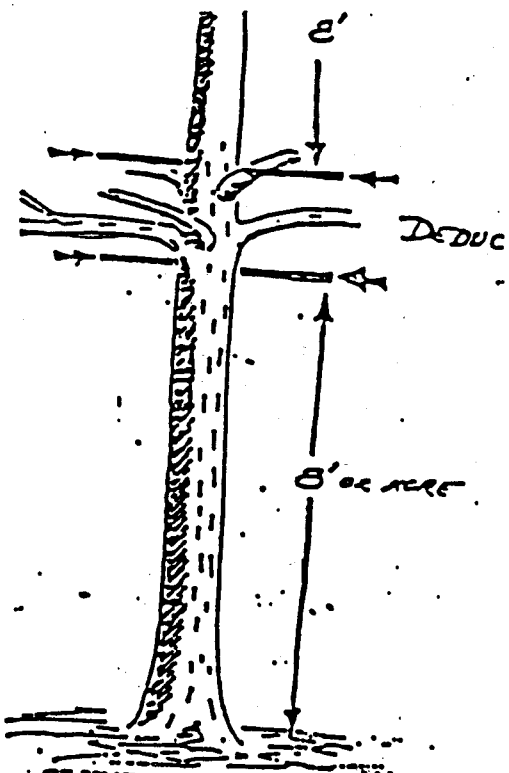
FIGURE 5



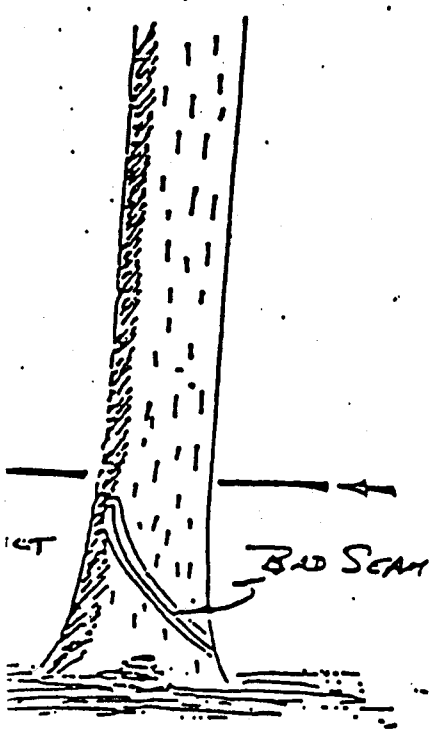
BUTT SWELL



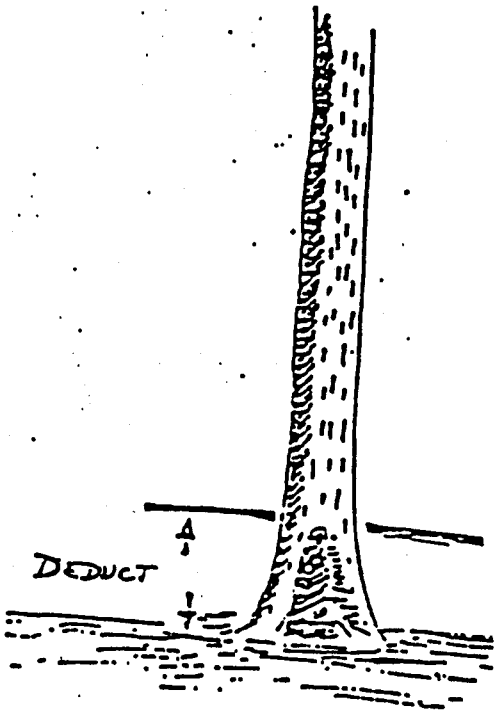
"JUNCTION" WOOD



CLUMP OF LIMBS



BAD SEAM



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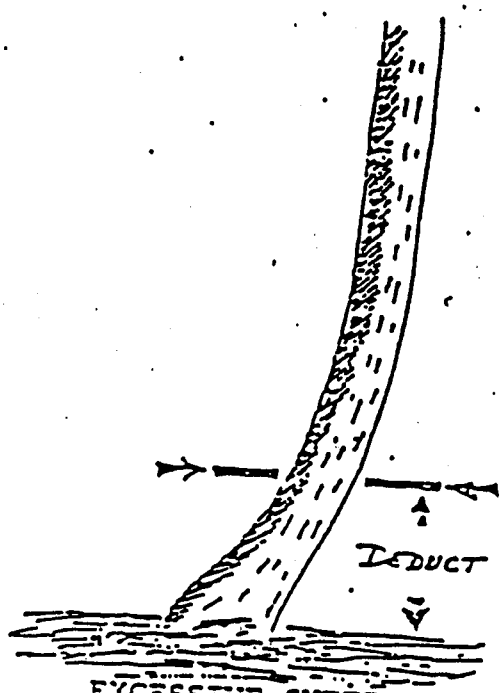


EXCESSIVE SWEEP

FIGURE 6

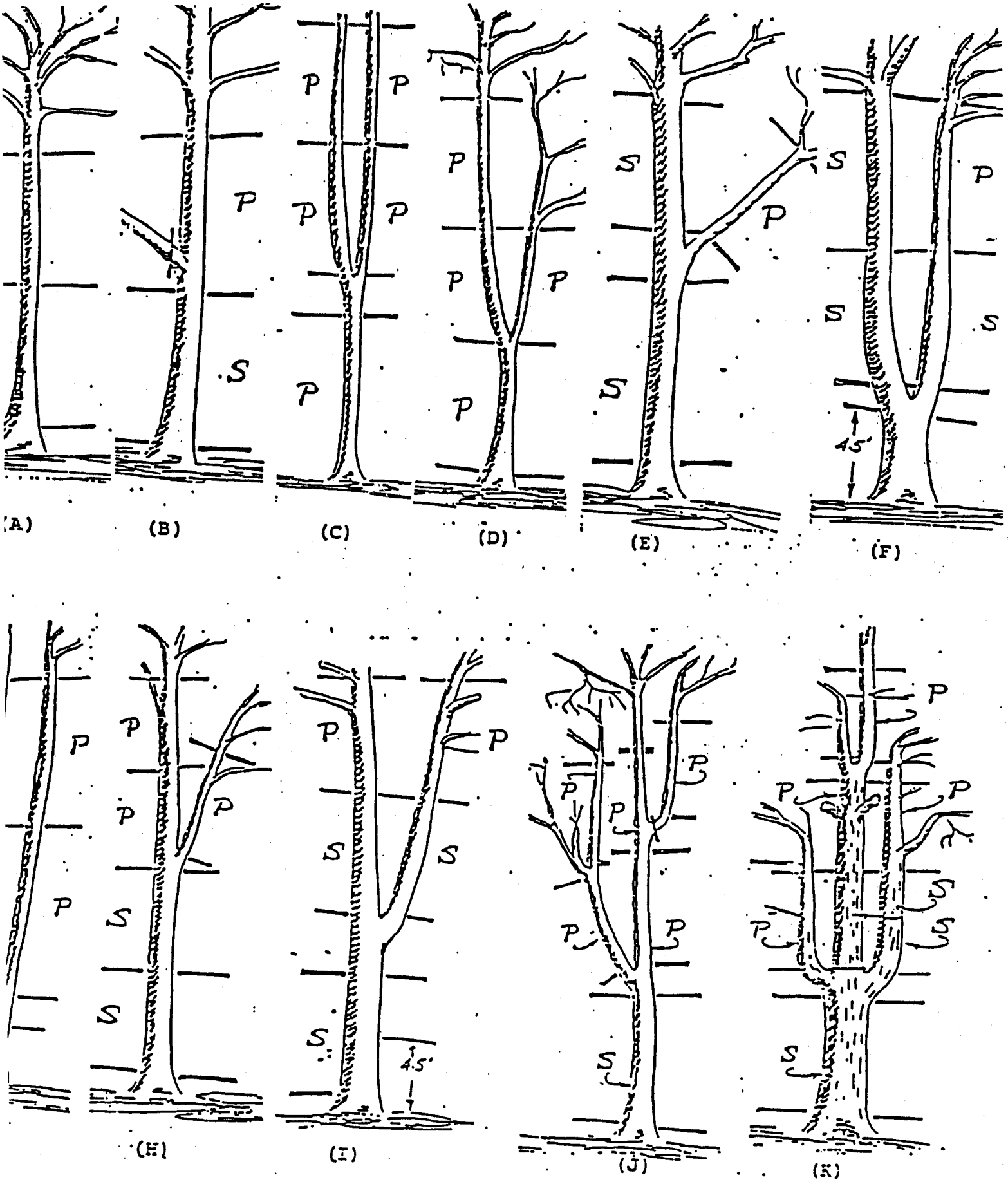


FIGURE 7

CRUISE EXPLANATION

EXAMPLE A) Two 100" pulpsticks.

EXAMPLE B) One 100' sawlog, one 100' pulpstick.

EXAMPLE C)
1. Three 100' pulpsticks in dominant stem.
2. Two 100' miscellaneous pulpsticks. 1/3rd of this equals .66 rounded to one. Add this to dominant stem total.
3. This tree has four recordable pulpsticks.

EXAMPLE D)
1. Three 100' pulpsticks in dominant stem.
2. One 100' pulpstick miscellaneous. 1/3rd of this equals .33 rounded to zero.
3. This tree has three recordable pulpsticks.

EXAMPLE E)
1. Two 100' sawlogs in dominant stem.
2. One 100' miscellaneous pulpstick. 1/3rd of this equals .33 rounded to zero.
3. This tree has two 100" sawlogs and no recordable pulpsticks.

EXAMPLE F)
1. Tree has three 100" sawlogs above 4.5 mark. Take 1/2 of this figure rounded to the nearest whole number or two.
2. Fork that has two sawlogs is the dominant stem (most value). Fork that has one sawlog and one pulp stick is considered miscellaneous. This one pulpstick will round down to zero using 1/3rd rule.
3. This tree has two 100" sawlogs and no pulpsticks.

EXAMPLE G)
1. Limb that contains two 100" sawlogs is considered dominant due to extra value.
2. Limb that contains two 100" pulpsticks is considered miscellaneous. 1/3rd rule will come out to .66 rounded up to one.
3. This tree has two 100" sawlogs and one 100" recordable pulpstick.

EXAMPLE H)
1. Dominant stem contains two 100" sawlogs and two 100" pulpsticks.
2. Miscellaneous limb contains one 100" pulpstick. 1/3rd rule gives .33 rounded to zero.
3. This tree has 2 sawlogs and 2 recordable pulpsticks.

EXAMPLE I)

1. Tree has one 100" sawlog below fork.
2. Tree has two 100" sawlogs, one per limb. Take 1/2 of these and add to below fork saw total.
3. This tree has two recordable 100" sawlogs.
4. Either stem would be dominant so one 100" pulpstick would be automatically recorded. Other 100" pulpstick will round to zero with 1/3rd rule.
5. This tree has one recordable pulpstick.

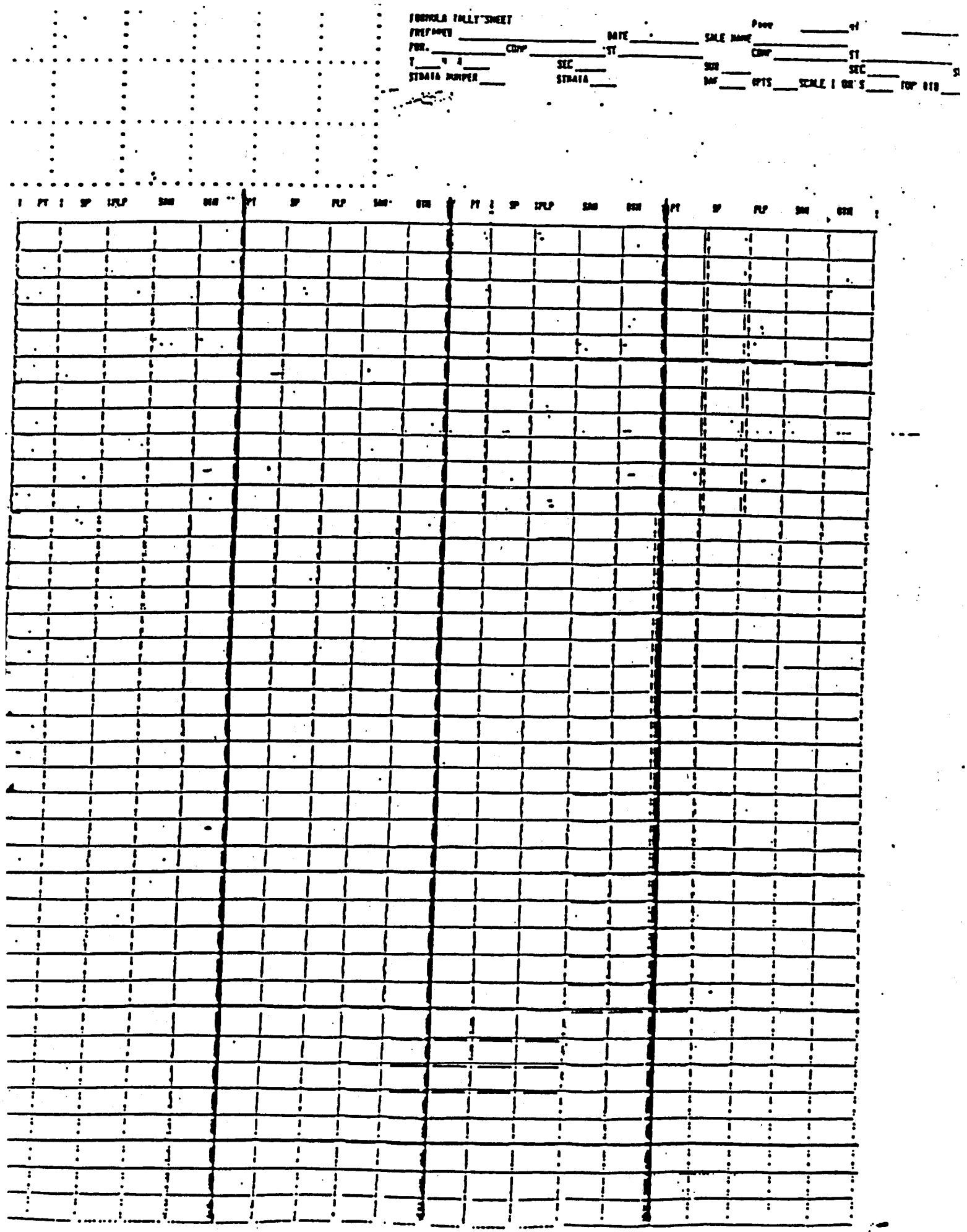
EXAMPLE J)

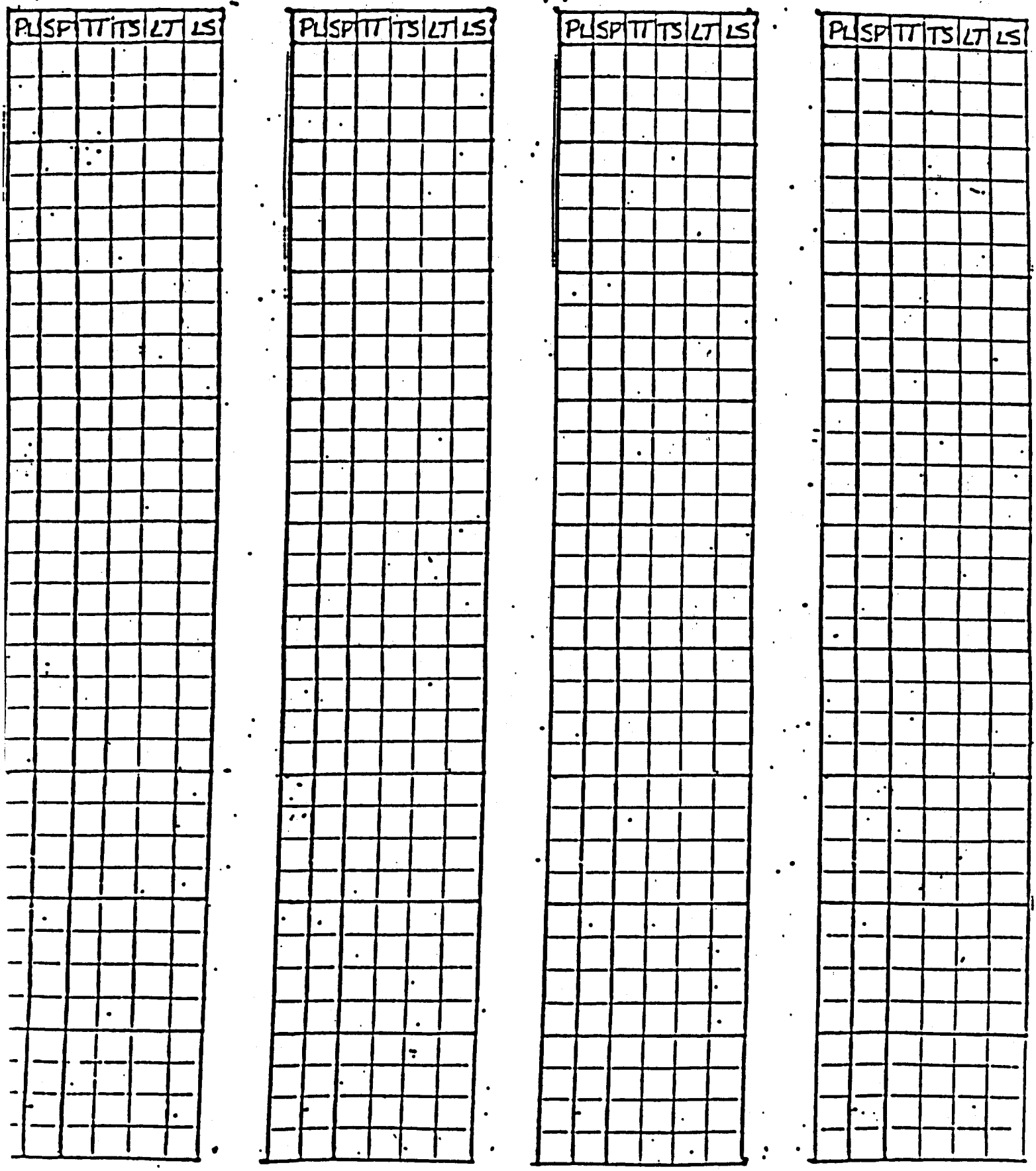
1. Dominant stem contains one 100" sawlog and two 100" pulpsticks.
2. Other limbs are miscellaneous pulp. 1/3rd rule will round up to one.
3. This tree has one sawlog and three recordable pulpsticks.

EXAMPLE K)

1. This tree has one 100" sawlog beneath fork.
2. This tree has two 100" sawlogs above fork, half of this will round to one.
3. This tree has 2 recordable sawlogs.
4. This tree has 2 pulpsticks in dominant stem.
5. Other pulp limbs are miscellaneous - will round up to one.
6. This tree has 3 recordable pulpsticks.

(CREXP)



CRUISER. _____ COMP _____ STD _____ BAF _____ GRID _____

UMMULATIVE TREE TALLY